

WHAT IS CLAIMED IS:

1. An imaging device chip set comprising:

an imaging chip provided for obtaining an electric signal by

5 photoelectric conversion of incident light; and

a DSP chip provided for carrying out digital signal processing with  
respect to the electric signal obtained by the imaging chip,

wherein

the imaging chip includes:

10 a plurality of unit pixels for generating the electric  
signal by the photoelectric conversion of incident light;

a horizontal scanning circuit for selecting the unit pixels  
in a horizontal direction; and

a vertical scanning circuit for selecting the unit pixels in  
15 a vertical direction,

the DSP chip includes:

a timing generating circuit for generating timing pulses  
necessary for operations of the horizontal scanning circuit and  
the vertical scanning circuit; and

20 a digital signal processing circuit for carrying out digital  
signal processing with respect to the electric signal generated  
by the plurality of unit pixels,

the timing generating circuit and the digital signal processing circuit,  
which are included in the DSP chip, are formed with CMOS transistors, and

25 the plurality of unit pixels, the horizontal scanning circuit, and the  
vertical scanning circuit, which are included in the imaging chip, are formed  
with transistors of a same conductivity type.

2. The imaging device chip set according to claim 1,

30 wherein the plurality of unit pixels, the horizontal scanning circuit, and  
the vertical scanning circuit, which are included in the imaging chip, are  
formed with n-MOS transistors.

3. The imaging device chip set according to claim 1,

35 wherein the transistors of the same conductivity type that form the  
plurality of unit pixels, the horizontal scanning circuit, and the vertical  
scanning circuit, which are included in the imaging chip, are formed according

to a minimum dimension greater than a minimum dimension for forming the CMOS transistors that form the timing generating circuit and the digital signal processing circuit included in the DSP chip.

- 5     4.     The imaging device chip set according to claim 1,  
          wherein at least a part of the horizontal scanning circuit and vertical  
          scanning circuit included in the imaging chip is formed with dynamic logic  
          circuits.
- 10   5.     The imaging device chip set according to claim 1,  
          wherein the imaging chip further includes:  
          an amplifier circuit for amplifying the electric signal generated by the  
          plurality of unit pixels; and  
          an analog-digital converting circuit for converting the electric signal  
15   amplified by the amplifier circuit into a digital signal and feeding the digital  
          signal to the digital signal processing circuit included in the DSP chip.
6.     The imaging device chip set according to claim 4,  
          wherein the plurality of transistors forming the dynamic logic circuits  
20   are isolated from one another with thick oxide films formed on a substrate.
7.     The imaging device chip set according to claim 4,  
          wherein the plurality of transistors forming the dynamic logic circuits  
          are isolated from one another with ion-implanted layers, the ion-implanted  
25   layers being formed so as to be exposed on a surface of a substrate.
8.     The imaging device chip set according to claim 1,  
          wherein each of the unit pixels included in the imaging chip includes an  
          embedded-type photodiode that is formed so as to be exposed on a surface of a  
30   substrate.
9.     An image pickup system comprising:  
          the imaging device chip set according to claim 1;  
          a memory that stores function information for executing functions  
35   including an electronic shutter and an automatic diaphragm; and  
          a controller for reading out the function information stored in the  
          memory, and feeding the function information to the DSP chip provided in the

imaging device chip set.